

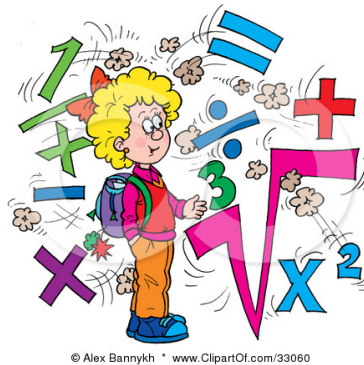
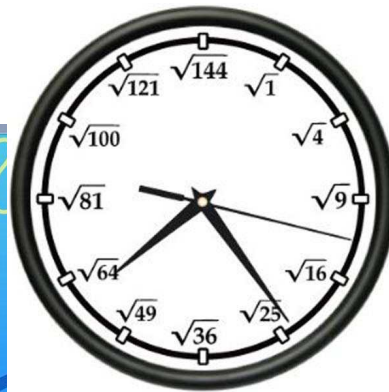
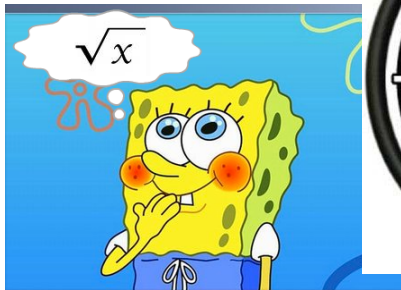
## Chapter 6 Square Roots & the Pythagorean Theorem

### 6.2 Activity The Pythagorean Theorem

Unit Question: How do we use signs and symbols to help us?

Learner Profile: Inquirer

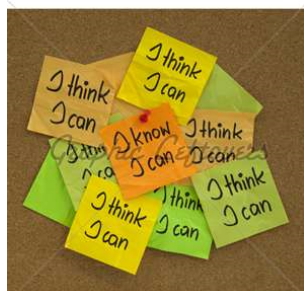
Area of Interaction: Human Ingenuity



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# I Can Statement:

I can prove the Pythagorean Theorem and its converse.



Pythagoras was a Greek mathematician and philosopher who discovered one of the most famous rules in mathematics. In mathematics, a rule is called a **theorem**. So, the rule that Pythagoras discovered is called the Pythagorean Theorem.

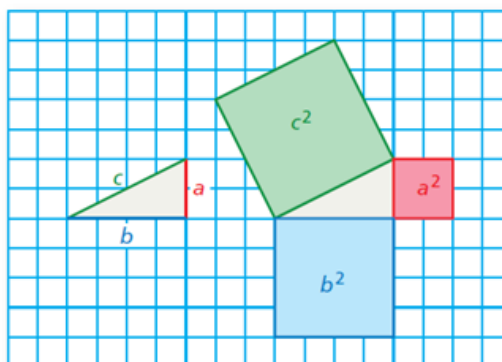


Pythagoras  
(c. 570 B.C.–c. 490 B.C.)

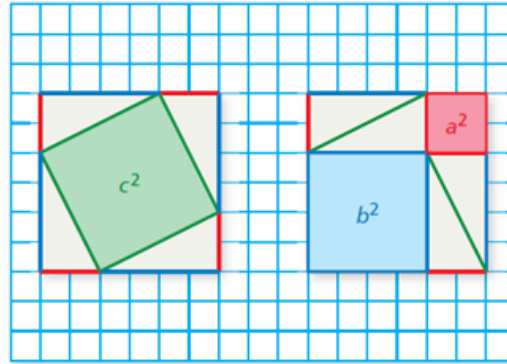
### 1 ACTIVITY: Discovering the Pythagorean Theorem

Work with a partner.

- On grid paper, draw any right triangle. Label the lengths of the two shorter sides (the **legs**)  $a$  and  $b$ .
- Label the length of the longest side (the **hypotenuse**)  $c$ .
- Draw squares along each of the three sides. Label the areas of the three squares  $a^2$ ,  $b^2$ , and  $c^2$ .

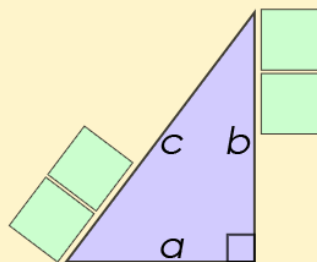


- d. Cut out the three squares. Make eight copies of the right triangle and cut them out. Arrange the figures to form two identical larger squares.
- e. What does this tell you about the relationship among  $a^2$ ,  $b^2$ , and  $c^2$ ?




- **Big Idea:** The two squares formed do have equal area. Referring to areas, if  $c^2 + (4 \text{ triangles}) = a^2 + b^2 + (4 \text{ triangles})$ , then  $c^2 = a^2 + b^2$  by subtracting the 4 triangles from each side of the equation.

$$a^2 + b^2 = c^2$$

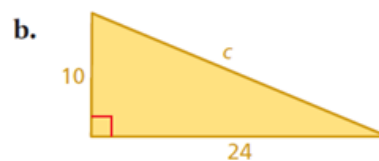
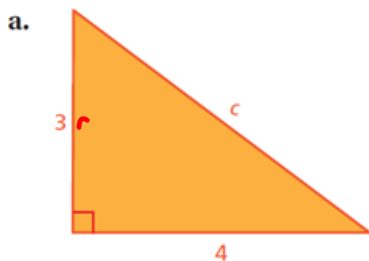


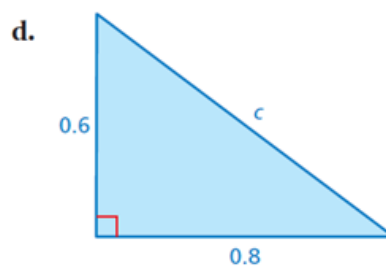
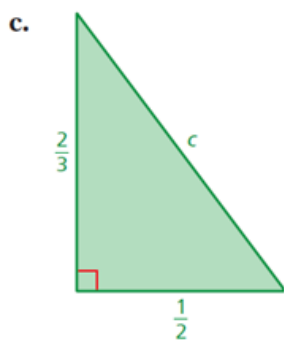
## Pythagorean Theorem Water Demo

 <http://www.youtube.com/watch?v=CAkMUdeB06o>

### 2 **ACTIVITY:** Finding the Length of the Hypotenuse

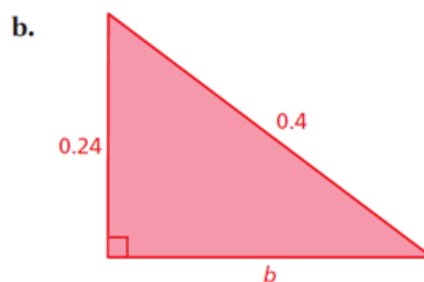
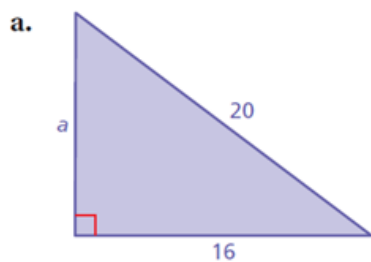
Work with a partner. Use the result of Activity 1 to find the length of the hypotenuse of each right triangle.





### 3 ACTIVITY: Finding the Length of a Leg

Work with a partner. Use the result of Activity 1 to find the length of the leg of each right triangle.



### What Is Your Answer?

4. **IN YOUR OWN WORDS** How are the lengths of the sides of a right triangle related? Give an example using whole numbers.

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## Classwork - Workbook p121 -123

